GEORGIA DOT BRIDGE NO. 105-00168X-00203E
Spanning Beaverdam Creek at County Road 168
Elberton
Elbert County
Georgia

HAER No. GA-93



PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
SOUTHEAST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
100 Alabama St. NW
Atlanta, GA 30303

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# HISTORIC AMERICAN ENGINEERING RECORD

## GEORGIA DOT BRIDGE No. 105-00168X-00203E HAER NO. GA-94

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| Location: | County Road 168 spanning South Beaverdam Creek 5.3 miles northwest of Elberton, Elbert County Georgia<br><br>U.S.G.S. 7.5 minute Dewey Rose, Georgia quadrangle, Universal Transverse Mercator coordinates: 17.323050.3782430 |
| Date of Construction: | 1930 |
| Builder: | Austin Brothers Bridge Company, Atlanta, Georgia |
| Present Owner: | Georgia Department of Transportation<br>State of Georgia, No. 2 Capitol Square<br>Atlanta, Georgia 30334-1002 |
| Present Use: | Vehicular bridge<br>To be demolished 1996 |
| Significance: | Georgia DOT Bridge No. 105-00168X-00203E is one of the few remaining Warren Pony Truss bridges in the state of Georgia. It is important at a state level for its relation to the State Highway Department's efforts in the 1920's-1930's to improve Georgia's roads for the rapidly increasing automobile traffic. This bridge has been determined eligible for the National Register. |
| Report Prepared by: | Tal Stanfield<br>Historian<br>Office of Environment/Location<br>Georgia Department of Transportation<br>3993 Aviation Circle<br>Atlanta, Georgia 30336-1593 |
| Date: | January 1996 |

Georgia DOT Bridge No. 105-00168X-00203E is a tangible reminder of the period of tremendous improvements in Georgia's transportation network which occurred in the years between World War I and World War II. This flurry of work began in 1919 with the formation of the Georgia State Highway Board, and with the construction of the first concrete highway in the state, a five mile section of State Route 3 north of Griffin, Georgia.

With the passage of the Federal Highway Act of 1921 States had available a matching program to fund highway construction and improvements. By 1931 with this federal money and revenues generated from the State's gasoline tax, Georgia was spending over half of its budget on road projects. This outlay paid off in that Georgia could boast of having 44 percent of its state and federal highways, as well as over 4,000 miles of rural county roads, paved by 1936.

Georgia's impetus to improve its automobile transportation network was precipitated by its officials' and its citizens' desires to progress economically by taking advantage of the benefits of modern technological developments that other parts of the country were enjoying. Georgians wanted new industry and other economic diversification away from agriculture and the freedom to make the most of the increased mobility offered by the automobile.

Georgia's leaders realized that if the state was going to succeed in attracting northern industries to the state the infrastructure, particularly the transportation facilities, would have to be improved dramatically. New South boosters wanted to impress northern manufacturers with the state's progressive advances and the road building boom was seen as an integral way to accomplish this.

Henry Flagler's opening up of the Florida coastal areas to tourists in the 1890s also did much to encourage road building in Georgia in the 1920s. In the first two decades of the Twentieth Century the majority of tourists traveling from the north through Georgia to Florida did so by rail. With the popularity of the automobile after World War I, Georgia's businessmen and government officials realized that with the ever-expanding numbers of travelers who owned automobiles, an industry catering to tourists was wanting to be developed. The road building effort was seen as a way to encourage people to travel south through the state on good roads and to allow economic benefits to be gleaned from the tourists.

The increased affordability and availability of automobiles after World War I also led to the push to improve and expand Georgia's roadways. Between 1915 and 1920 automobile registrations in the

South increased almost six fold from approximately 25,000 to over 146,000. The automobile was utilized by farmers for transporting crops to market, by businesses to deliver goods and by families and individuals to get to jobs, schools, shopping and leisure activities. The residents of Georgia who could now afford to own automobiles wanted to be able to take advantage of their increased mobility by having good roads to drive on, and this proved a strong impetus for the State's road building efforts.

Georgia DOT Bridge No. 105-00168X-00203E was built during the middle of the era of road improvements in Georgia in 1930. The residents of the hamlets of Dewey Rose and Thirteen Forks, mostly farm families, needed a safe and dependable crossing over South Beaverdam Creek in order to get to Elberton. Elberton, the county seat, was the hub of governmental, commercial and leisure activities for the residents of Elbert County. Rural residents brought their crops and produce to market, came into town to trade at the numerous commercial establishments and, on the weekends, came into town for various recreational pursuits. As part of its efforts to improve Georgia's county road network, the State Highway Department contracted with Austin Brothers Bridge Company of Atlanta to erect a bridge over South Beaverdam Creek.

The bridge selected for the site was a Warren pony truss design, so called because the truss's smaller than standard size and its lack of overhead support members. This type bridge, made of steel with a wooden deck, lent itself to the site requirements in that it was relatively quick to construct and less expensive than a concrete bridge. The Warren pony truss bridge was made of steel members riveted together, had a wooden deck and did not sit on pilings, unlike the concrete bridges commonly built at the time, which consisted of a superstructure made of concrete decking and railings poured into forms supported by steel I-beams and a substructure of wooden or concrete pilings. Additionally, metal truss bridges could be assembled with standardized parts by unskilled workers rather than the lengthy, labor-intensive process of stonemasons erecting concrete bridges. The Warren truss type bridge was the most frequently built metal truss bridge in the United States in the Twentieth Century.

The Warren truss was introduced and patented in 1848 by James Warren and Willoughby Monzoni. The truss's original form was that of a series of equilateral triangles. Vertical or alternate diagonal braces were added to later designs to provide increased stability and strength. Truss bridge designs were developed and popularized as a stronger, more feasible alternative to pile-and-beam-spans. The tremendous weight of locomotives and the often uneven terrain they had to cross required a bridge design that could be both strong and self supporting. The first truss designs were constructed of wood and allowed engineers to traverse greater

distances than ever before with pile-and-beam spans. Metal truss bridges were developed in the period between 1840 and 1880 as an alternative to wooden bridges, which were not as strong as metal and were less durable.

Initially cast iron was used in the construction of metal truss bridges, but this material proved too brittle and weak when subjected to tension. Warren and Monzoni, as well as other bridge design innovators of the day, turned to wrought iron instead of cast iron after the former became widely available. Wrought iron was the material of choice for Warren truss and other metal truss bridges until the 1890s, when steel surpassed it in popularity. The invention of the Bessemer steel process allowed large amounts of pure steel to be made inexpensively and this purer material soon became the metal of choice for structural elements in metal truss bridge design, as well as other engineering endeavors.

With the popularity and relative ease of construction of metal truss bridges linked with the need for newer, safer, less labor intensive bridges, construction companies specializing in erecting bridges began in large numbers in the late 19th Century and on into the first three decades of the Twentieth Century. The Georgia company that built Georgia DOT Bridge No. 105-00168X-00203E, Austin Brothers Bridge Company of Atlanta, was one of these. The company, founded in 1896 by George L. Austin, built bridges in Georgia for over 40 years until it disbanded in 1937.

Between 1890 and 1940 at least 155 metal truss bridges were built in Georgia for the State Highway Department by numerous bridge building firms including the Austin Brothers. The majority of these bridges were either Warren trusses or Pratt trusses. At least three of these bridges were built in Elbert County, one Pratt pony truss and two Warren pony trusses. Georgia DOT Bridge No. 105-00168X-00203E is one of the latter.

Georgia DOT Bridge No. 105-00168X-00203E is made of steel members fastened together with steel rivets. The triangular truss is reinforced by vertical steel girders, three on each side of the bridge's single truss, located at every other junction of the truss members. The deck material consists of wood planks laid perpendicular to the trusses and overlaid with longitudinal boards. The bridge is 24.7 meters (81 feet) long overall, the truss is 18 meters (59 feet) in length and the structure is 4.1 meters (13.3 feet) wide. A steel guardrail consisting of two small dimension girders placed longitudinally on each side of the bridge and bolted onto the truss was designed to protect vehicular and pedestrian traffic from falling between the truss members.

The landscape feature crossed by Georgia DOT Bridge No. 105-00168X-00203E is South Beaverdam Creek, a tributary of the

Savannah River. The crossing site is relatively flat with both approaches on flat ground. The structure is on a level with the surrounding land and stretches from one creek bank to the other.

## SOURCES OF INFORMATION

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